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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

|   |  |  |  |
|---|--|--|--|
| Applicant's or agent's file reference<br>case p-10090   |  | FOR FURTHER ACTION See Form PCT/IPEA/416                                     |  |
| International application No.<br>PCT/SE2003/000916  | International filing date (day/month/year)<br>03-06-2003 | Priority date (day/month/year)<br>07-06-2002                                 |  |
| International Patent Classification (IPC) or national classification and IPC<br>G05D 1/03, A01D 34/00   |  |  |  |
| Applicant<br>AKTIEBOLAGET ELECTROLUX et al  |  |  |  |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p> |  |  |  |
| Date of submission of the demand<br>04-12-2003  |  | Date of completion of this report<br>02-08-2004                              |  |
| Name and mailing address of the IPEA/SE<br>Patent- och registreringsverket<br>Box 5055<br>S-102 42 STOCKHOLM<br>Facsimile No. +46 8 667 72 88   |  | Authorized officer<br>Gordana Ninkovic /itw<br>Telephone No. +46 8 782 25 00 |  |

Form PCT/IPEA/409 (cover sheet) (January 2004)

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# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2003/000916

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))  
☐ publication of the international application (under Rule 12.4)  
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

☒ the international application as originally filed/furnished

☐ the description:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the claims:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ the drawings:

pages \_\_\_\_\_ as originally filed/furnished

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages \_\_\_\_\_

☐ the claims, Nos. \_\_\_\_\_

☐ the drawings, sheets/figs \_\_\_\_\_

☐ the sequence listing (*specify*): \_\_\_\_\_

☐ any table(s) related to the sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2003/000916

**Box No. V** Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

|                               |        |   |     |
|-------------------------------|--------|---|-----|
| Novelty (N)                   | Claims | <u>2-7, 10, 12, 14-41, 45, 47-50</u>            | YES |
|                               | Claims | <u>1, 8-9, 11, 13, 42-44, 46, 51-55</u>         | NO  |
| Inventive step (IS)           | Claims | <u>2-5, 17-21, 23, 24</u>                       | YES |
|                               | Claims | <u>6-7, 10, 12, 14-16, 22, 25-41, 45, 47-50</u> | NO  |
| Industrial applicability (IA) | Claims | <u>1-55</u>                                     | YES |
|                               | Claims |   | NO  |

## 2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1 WO 9959042 A1 (Friendly Machines Ltd), 18 November 1999  
D2 WO 9938056 A1 (AB Electrolux), 29 July 1999  
D3 US 5940346 A (J.S.Sadowsky et al), 17 August 1999  
D4 US 4470013 A (G.Posseme), 4 Sept 1984

The most relevant documents are D1 and D2. Documents D3 and D4 represent the state of the art.

Document D1 discloses a system comprising an autonomous robot for systematically moving about an area to be covered. Operating of the robot is arranged with the help of boundary and obstacle markers (48,50) formed of wires and connected to a power supply via a wave generator (62). A magnetic sensor (72) for sensing the magnetic field of the markers is arranged on the robot (70). In one of embodiments the signals for the markers are formed by pulses (64,66,68), with a short synchronization pulse (64) as introduction of every period. (See page 9, line 6-page 10, line 14; fig.3A,3B,3C). The robot can be used for household appliances, such as vacuum cleaner and lawnmower.

Document D2 discloses an electronic search system for a working tool, such as lawnmower or vacuum cleaner. A border cable is placed so that it separates an inner area from an outer area and one or more search cables are placed within the inner area. A signal generator feeds the border cable with current containing at least two alternating-current components of different frequency, whose magnetic field affects a sensing unit located on the tool, while the search cables are fed by

.../...

## Supplemental Box

In case the space in any of the preceding boxes is not sufficient.  
Continuation of: V

virtually identical current, but where the current direction alternates in time in being either in or out of phase in relation to the current direction in the border cable. Thereby magnetic fields in the different areas will create different time patterns and a control unit of the tool can separate different areas. (See page 15, line 1-19; fig. 6, 7).

According to what is known from document D1, the invention defined in claims 1 and 42 is not considered to be novel. Even claims 8-9, 11, 13, 43-44, 46 and 51-55 lacks novelty in the view of document D1.

What is defined in characterizing part of claims 25-33 is disclosed in document D2, why these claims are not considered to involve an inventive step.

Claims 6-7, 10, 12, 14-16, 22, 34-41, 45 and 47-50 only contain features which are not considered to go beyond what can be expected from a person skilled in the art, especially since the advantages thus achieved can be readily contemplated in advance. Therefore the subject matter of these claims is not considered to involve an inventive step.

None of the cited documents, taken alone or in combination, reveals the invention defined in claims 2-5, 17-21, 23 and 24. Therefore, the invention claimed in these claims is novel and involves an inventive step.

The invention is considered to be industrially applicable.

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.

PCT/SE2003/000916

**Box No. VII Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

Claim 51 concerns the method, but contains the features that characterize the system and also refers to all preceding claims, concerning both the method and the system.  
Claim 51 should concern the system and refer to claims 42-50.